Method of Test For

THEORETICAL MAXIMUM SPECIFIC GRAVITY OF ASPHALT CONCRETE MIXTURES

DOTD DESIGNATION: TR 327-14

Scope

1. This method of test determines the theoretical maximum specific gravity and density of uncompacted bituminous paving mixtures at 25°C.
2. Reference Documents
   A. DOTD S 201 – Sampling Asphaltic Materials
   B. DOTD S 203 – Sampling Asphaltic Mixtures
   C. AASHTO T 248 – Reducing Samples of Aggregate to Testing Size
   D. AASHTO T 209 – Theoretical Maximum Specific Gravity and Density of Hot Mix Asphalt (HMA)
   E. DOTD TR 3xx – Asphalt Volumetric Calculations

Apparatus

1. Use AASHTO T209, Section 6-APPARATUS with the following modifications
   A. The pycnometer capacity shall be approximately 4500 mL.
2. Worksheet – Theoretical Maximum Specific Gravity Worksheet (03-22-3095), Asphaltic Concrete Plant Report, or Superpave Asphaltic Concrete Plant Report

Sample

1. Use AASHTO T209, Section 6-SAMPLING with the following modifications
   A. Minimum sample sizes shall be determined according to Table 1
   B. Field core samples are allowed if the minimum sample size is met according to Table 1
   C. If a sample is not soft enough to separate with a spatula or trowel, place the material in an oven at 160±5°C (320±9°F) until a proper level of workability is obtained.

Procedure

1. Use AASHTO T209, Section 10 and 11, METHOD A-MECHANICAL AGITATION PROCEDURE
2. Use AASHTO T209 Section 13.1, Mass Determination in Water

Report

1. Report the Theoretical Maximum Specific Gravity (G_{mm}) to the nearest 0.001.

Normal Test Reporting Time

Normal test reporting time is 4 hours.

Table 1 Minimum Sample Size		
Nominal Maximum Size Aggregate in Mix, in.(mm)	**Minimum Sample Size, g**	
	Loose Mix	**Core**
1½ (37.5)	4000	4000
1 (25.0)	3000	2500
¾ (19.0)	2000	1600
½ (12.5)	1500	1500
3/8 (9.5)	1000	1000
No. 4 (4.75)	500	500